4. The method of claim 1, wherein said *Sox* gene expression is detected by nucleic acid hybridization.

5. The method of claim 1, wherein said *Sox* gene expression is detected by binding of a SOX polypeptide or a SOX nucleic acid corresponding to mRNA to a detectable ligand.

6. The method of claim 5, wherein the detectable ligand is a labeled immunoglobulin.

7. The method of claim 5, wherein said detectable ligand is a labeled oligonucleotide complementary to *Sox* mRNA.

8. The method of claim 1, wherein said *Sox* gene expression is detected by FACS analysis.

9. A method for isolating a desired cell type from a population of cells, comprising the steps of:

(a) transfecting said population of cells with a genetic construct comprising a coding sequence encoding a detectable marker operatively linked to control regions sensitive to modulation by a SOX polypeptide;

(b) detecting the cells which express said detectable marker; and

(c) sorting said cells which express said detectable marker from said population of cells.

10. A method for isolating a neuroblastic cell from a population of cells, comprising the steps of:

(a) transfecting said population of cells with a genetic construct comprising a coding sequence encoding a detectable marker operatively linked to a control sequence which is transactivatable by a SOX polypeptide;

(b) detecting the cells which express said detectable marker; and

(c) sorting said cells which express said detectable marker from said population of cells.

11. The method of claim 9 or claim 10, wherein said detectable marker is a fluorescent or luminescent polypeptide.

12. The method of claim 9 or claim 10, wherein said detectable marker is a polypeptide detectable at the surface of the cell.

13. A method for producing a cell committed to a specified lineage, comprising the steps of:

(a) transfecting a pluripotent stem cell with a genetic construct comprising a coding sequence expressing a SOX polypeptide;

(b) culturing said stem cells to differentiate them into neural cells; and

(c) isolating said neural cells thereby produced.

14. The method of claim 13, wherein said coding sequence expressing a *Sox* polypeptide is operatively linked to an inducible promoter.

15. The method of claim 13 or 14, wherein said cell is further transfected with a vector comprising a sequence encoding a regulator which regulates the expression of the *Sox* sequence.

16. The method of claim 1, 9 or 13, wherein said *Sox* gene is a member of *Sox* Group A.

17. The method of claim 16, wherein said *Sox* gene is *Sox1* or *Sox2*.

Respectfully submitted,

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